Comparing Undergraduate Learning Outcomes for Traditional Language Sampling & Analysis Instruction vs. Digital Language Sampling & Analysis Instruction with LENA

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Introduction

Two foundational skills for undergraduates studying child language disorders are language sampling and analysis. Currently, CMD students learn these skills by gathering language samples of children in small segments using audio recordings, transcribing the sample by hand, and conducting limited analyses by hand each semester. However, due to the time constraints and physical barriers associated with this type of data collection, it is unlikely that the sample will accurately represent the child’s spontaneous language in their daily routine. Furthermore, analysis of the sample is limited to what can be conducted by hand in a reasonable time frame. In contrast to traditional methods, using LENA technology effectively cuts down language sampling and analysis time from two to three weeks, to just a few hours. The technology also allows students to collect a much longer and more representative sample (16 hours vs. traditional 20-30 minute sample) to capture the child’s natural language use (e.g., home or school) without having to be physically present in these settings. In addition, LENA allows students to analyze a wide range of data, including child output, adult input, and child exposure to electronic media.

This is the first study to compare the learning outcomes of undergraduate students using traditional sampling methods versus language sampling using LENA technology.

Methods

The course was taught in two units. In weeks 3-7 of the course, students digitally collected and analyze a child’s language sampling on same child using LENA technology. In weeks 8-13, students sampled and analyzed child language using traditional methods—collect language sample (video), transcribe orthographically, and complete analyses using traditional hand calculations. Formative and summative assessments of student progress were collected for each condition (i.e., traditional language sampling vs. digital language sampling and analysis using LENA). Student self-ratings (SSRs) of language sampling and analysis skills were taken at baseline, midpoint and final for each of the units (traditional and LENA) using web-based Qualtrics survey software.

Participants

Students enrolled in URI CMD 375 Language Development in Fall 2017 were invited to participate in this study. Forty two student completed the confidential web-based survey.

Results

1. Project Impact on Targeted Skills: Collecting Child Language Samples

Traditional Language Sampling & Analysis

- Project Impact on Targeted Skills: Collecting Child Language Samples

- Project Impact on Integration of Student Learning

- Project Impact on Student Attitudes

LENA Language Sampling & Analysis

- Project Impact on Targeted Skills: Collecting Child Language Samples

- Project Impact on Integration of Student Learning

- Project Impact on Student Attitudes

Student Comments

What will you CARRY WITH YOU from this project to future learning?

Traditional Language Sampling & Analysis

- Project Impact on Targeted Skills: Collecting Child Language Samples

- Project Impact on Integration of Student Learning

- Project Impact on Student Attitudes

LENA Language Sampling & Analysis

- Project Impact on Targeted Skills: Collecting Child Language Samples

- Project Impact on Integration of Student Learning

- Project Impact on Student Attitudes

Teaching Implications

Students enrolled in URI CMD 375 Language Development in Fall 2017 participated in this study. Overall, feedback for both projects was positive and students described valuing the opportunity for hands-on experience with sampling child language regardless of approach. Students valued the unobtrusive recording method, representative sampling, and rich data of the LENA method. However, students also valued the face-to-face contact with their sampling child and knowing how to analyze and calculate metrics independently. However, given a choice of methods, only a small percentage of students (7%) would choose traditional methods only, whereas more than half of students would choose LENA and around 40% of undergraduate CMD students would choose a combination of LENA with traditional language sampling and analysis methods.